



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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**CERTIFIED MAIL
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REPLY TO THE ATTENTION OF

SR-6J

June 4, 2009

Kristofer D. Krause, P.E.
RMT, Inc.
P.O. Box 8923
Madison, WI 53708-8923

Re: Lemberger Transport and Recycling Site (LTR), Monitored Natural
Attenuation (MNA) Summary Report

Dear Mr. Krause:

In a letter dated February 19, 2009, the U.S. Environmental Protection Agency (EPA) disapproved the MNA report and provided RMT, Inc. with a list of deficiencies in the report. In accordance with our verbal agreement, RMT provided responses to these deficiencies in a document dated April 17, 2009. Unless otherwise explained below, the responses to the deficiencies are acceptable, and the MNA report (or other report as indicated in your responses) should be revised to be consistent with your responses. For your guidance in revising the MNA report, EPA comments on RMT's responses are explained below. In accordance with Section XII of the Consent Decree, the Lemberger Site Remediation Group (LSRG) should correct the deficiencies in the MNA report and resubmit the MNA report within 21 days of your receipt of this letter.

Response 4 (Executive Summary, par. 2): To complete the description the SVOC, pesticide/PCBs, and cyanide analyses should be noted.

Section 4.2, bullet 2: According to RMT's Sen slope analysis, there is no trend in cis-1,2-DCE at RM-303D.

Responses 6, 7 and 23 (Executive Summary, par. 4 and 5; Section 4.3; Section 4.5; Section 4.5.1; Section 4.7, Section 5.1): We need to distinguish between data that indicates conditions amenable to biodegradation of CVOCs, and actual evidence of that biodegradation of CVOCs is occurring. The only direct evidence that anaerobic dechlorination of TCE and 1,1,1-TCA is occurring is the detections of Cis and 1,1-DCA. Although Cis and 1,1-DCA are detected throughout the plume, it is possible that these compounds were generated in the source area, and migrated downgradient without much degradation.

ratio of ratio of 1,1-DCA / 1,1,1-TCA is relatively unchanged versus distance from LTR, and cis-1,2-DCA / TCE only very gradually decreases. It would also explain the non-detection of vinyl chloride, ethane and ethane downgradient from LTR. Inasmuch as it is unlikely that the degradation rates of the parent and daughter products would be equal or nearly equal, this is additional evidence that the bulk of the degradation occurs very near the landfill, and that the lower downgradient concentrations are primarily the result of dilution.

The DO↓ and CO₂ ↑ in the downgradient plume area could be from biodegradation of non-target organic compounds. This would be consistent with the DO↓ and CO₂ ↑ outside of the plume. DO↓ and CO₂ ↑ could also be from migration of groundwater from the source area.

In addition, note that RMT's indication that anaerobic and aerobic biodegradation is occurring throughout the plume is not consistent with assumptions in the 1999 modeling report: *Groundwater Modeling Report and Plan for Recovery System Enhancements at the Lemberger Superfund Sites* (RMT). In the 1999 modeling report, RMT assumed three biodegradation regions, including a reduced decay rate in a near downgradient region, and no decay a far downgradient region (see Figure B-3).

Response 7, and Attachments 3 and 8: At many the wells, the Cis/TCE and DCA/TCA data shows no significant trend versus time. RMT needs to use a systematic statistical test to screen out the wells where there is no significant trend, and properly identify the trends in Attachment 8 and in the text.

Response 9 (Executive Summary, par. 7; Section 5.1, bullets 1 and 6): Although you state that the pump-and-treat system was never designed for containment, the Final Design Report, *Lemberger Landfill RD/RA Operable Unit 1* (Malcolm Pirnie), indicates that it was intended to contain the LTR source area groundwater ("Well EW1D is located in the northwestern portion of the LTR site. This is near the major source of contaminants to the regional aquifer, and its purpose is to remove the most heavily contaminated groundwater and provide source control.", p. 4-2). This design was necessary to meet the requirement of the Statement of Work attached to the Consent Decree ("The Settling Defendants shall install and operate an extraction system which shall be a network of wells designed to completely capture and remove contaminated groundwater in the upper and lower aquifer within and down gradient of the source area (LL and LTR facilities", Section 6).

Response 17: According to my calculations, 1 mg/l of TCE can produce 0.81 mg/l of Cl⁻ from dechlorination:

$1 \text{ mg/l TCE} / 131.5 \text{ g/mole} \times 10^{-3} \text{ g/mg} = 7.605 \times 10^{-6} \text{ mole/l TCE}$
 $7.605 \times 10^{-6} \text{ mole/l TCE} \times 3 \text{ (moles Cl/mole TCE)} = 2.28 \times 10^{-5} \text{ mole Cl/l}$
 $2.28 \times 10^{-5} \text{ mole Cl/l} \times 35.5 \text{ g/mole Cl} \times 10^3 \text{ mg/g} = 0.81 \text{ mg/l}$

Response 18, Attachment 5 (Section 4.5.1): The descriptions of the two different subsurface conditions used to label areas on Attachment 5, do not correspond with the description in the text regarding conditions that affect DO and nitrate levels. Please clarify and make the descriptions consistent.

Response 19 (Section 4.6): In addition to adding the explanations regarding the statistical methodology to the revised MNA Summary Report, the statistical

Response 26: We could consider reducing sampling requirements, if further source area containment/treatment work is performed. Add the following monitoring:

- BEHP;
- Add RM-204D to the hydraulic monitoring;

Response 28 (Section 5.2, last par.): We do not agree that the meaning of "optimize" was stated in the section. The word "optimize" should be replaced with "recommend modifications to". No changes to an approved monitoring program should be made without the Agency's approval.

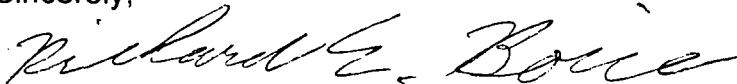
Response 34 (Executive Summary, Section 4.5): The definition of source area wells needs be added to the report and consistency maintained. For example, In Section 4.5, RM-303D is identified as a LTR source area well. In Table 8 it is classified as a near-field well. It may be that source area wells are a subset of the near-field wells, but that is not what the response indicates.

Response 35 (Section 4, bullets 1 and 2): The response clarifies that the terms biotically-mediated and biologically-mediated mean the same; it does not explain why the two different terms are being used. To reduce confusion, why not use a single term?

Attachment 8: Add the Cis/TCE ratio for RM-207XXD to the table because it is discussed in the text. The Cis/TCE ratio for RM-208D noted in Section 4.2, bullet 6, does not agree with the ratio identified in Attachment 8.

If you have any questions, feel free to contact me at (312) 886-4740, or boice.richard@epa.gov.

Sincerely,



Richard E. Boice
Remedial Project Manager

cc: J. Walden, WDNR
J. Wallner, Red Arrow
J. Lange, Quantum
T. Ries, Manitawoc
D. Clark, Foley&Lardner
T. Reed, Monitowox Public Utilities

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Kristofer D. Krause, P.E.
RMT, Inc.
P.O. Box 8923
Madison, WI 53708-8923

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